

Comments on Advance Draft of the HAMP Project Engineering Report (PER)
July 7, 2013

Primary Comments

1. **General Comment.** The PER is a clearly-written and useful document and the IHS personnel who have worked on it are to be commended for their valuable analysis of how a water system can be developed that will meet the needs of the residents of First and Second Mesa for an adequate supply of Safe Drinking Water Act-compliant water as well as their dedication to the effort to solve the water supply problems for the people who will be served by HAMP.
2. **Differentiation Between Planning, Assessment, and HAMP Construction and Implementation Costs.** The PER should maintain a clear delineation between planning and assessment costs vs. actual construction and implementation of HAMP. IHS, EPA, and the Tribe have been working for over a decade to identify where a Safe Drinking Water Act-compliant water source could be found that would meet the needs of First and Second Mesa villages and to do the preliminary planning, engineering, and environmental compliance work on alternative approaches to modifying the water delivery and treatment approach for First and Second Mesas to meet Safe Drinking Water Act standards. All or virtually all of the expenses to date have been for that purpose including drilling wells near the villages and testing their water that resulted in the conclusion that alternative well sites at the mesas would not result in finding locations without high arsenic levels, drilling two wells to determine whether the Turquoise Trail area could be developed with adequate water supply and quality to meet the needs and to prepare the analyses necessary to cost out alternatives and make a recommendation on the best approach to follow.

What we recommend is that these planning costs not be displayed in the PER and that the PER reflect only the costs to implement the various alternatives – i.e., future costs. Using this approach, Table 8.2 on page 61 would be modified to delete all reference to the four EPA and IHS grants related to assisting the Tribe in finding a viable solution to the water quality issues for its eastern villages that have no remaining funds, and only the remaining funds balance (reabeled “Available Funds”) of the three EPA grants that have remaining funds would be listed in the table. The table would be renamed, “Currently Available Federal Funds to Finance HAMP.” If the Hopi Tribal Council approves a Tribal grant for funding HAMP prior to the final PER being completed, then “Federal” could be dropped from the title. The text should be modified consistent with this approach, including deleting the lead-in to the bulleted list on page 61, the bullets themselves, moving the last sentence to precede the table, and rewording it as follows: “Funds available to initiate implementation of HAMP are available from three EPA grants and total an estimated \$2.5 million. This leaves an estimated balance of \$14.914 million remaining that will need to be sought from Tribal and other sources.”

This approach to focusing on the project alternatives available to the Tribe will be particularly helpful in the HAMP financing application process w/USDA because we

expect that the Tribe's application will treat all costs to date as conceptual planning for the HAMP water system and the cost to go from application for financing through construction will be the HAMP project cost.

3. **Reduction of Capital Costs.** Consistent with item 2, above, to the extent that any elements of the HAMP proposal as reflected in the draft PER are useful for upgrading the existing water systems of the villages of First and Second Mesa, and remaining funds from existing or anticipated grants could be used to cover those costs, it will be useful to treat those as village water system improvements, fund them with the EPA grants, and eliminate their costs from the HAMP proposal. This is important from the standpoint of preparing and submitting an application for USDA funding for HAMP.

Assuming that USDA would be willing to limit HAMP funding from Tribal sources to 25% of total HAMP costs in a financing package that takes account of USDA grants and available funds from other federal grants and treats USDA loans plus grants from the Tribe as what makes up the 25%, each dollar 100,000 of existing or anticipated EPA grants that could be used to fund village water system improvements that lower HAMP costs by an equivalent amount would lower the overall Tribal share of funding for HAMP. This could be any combination of reduction in the Tribe's capital contribution and a reduction in the USDA loan amount.

As described below in item 4, any reduction in HAMP operations costs will be quite helpful in that HAMP costs reflected in the price of water are projected to be quite high and potentially beyond the means of many Hopi village residents. If the loan repayment costs are less than those reflected for the \$1,978,500 in the advance draft of the PER, then the loan repayment reflected in the water bill passed on by the village water systems to residents will be reduced. It should be noted that the expected USDA loan amount is simply an estimate and we have seen no clear criteria from USDA as to the size of a loan they would insist on as part of a financing package. Note that the August 21, 2012, edition of the draft Strategic Plan estimated the loan amount to be \$1,662,000 for a project which, at the time, was estimated to cost nearly \$3 million for than the current \$16.9 million estimate for HAMP. As best as we have been able to tell, any estimate of what USDA will require as the amount to be covered by loan vs. other Tribal contribution is, at this time, a conjecture. To the extent it is closer to or less than the \$1,662,000 rather than as much as \$1,978,500, that will benefit the residents of First and Second Mesa. Additionally, if there are any elements of HAMP capital cost that are optional, it would be helpful to have a discussion on those before the PER is published.

4. **Reduction of Operations Costs.** The estimated \$71.07 average cost of HAMP water per connection as shown on Table 8.4 is extraordinarily high and every effort needs to be made to reduce it. The useful comparison numbers are that Flagstaff charges \$33.04, Winslow \$22.01, and Page \$21.23 per month for 6,400 gallons of potable water.¹ The NTUA rate would be \$33.72/month for 6,400 gallons based on the rates in the table provided by Adam Hughes. The similar figures as reported in Table 8.5 for Kykotsmovi

¹ Water Infrastructure Finance Authority of Arizona, 2012 Water and Wastewater Residential Rate Survey for the State of Arizona, Sec. 7.

and metered Keams Canyon water are \$55.00 and \$55.04, but include the sewerage charge. The sewer charge may be included in the HAMP average, but there may be many more homes in the First and Second Mesa villages that do not have sewer service or which have only partial service in that they have fewer in-home water connections per residence resulting in wastewater (e.g., fewer homes with showers).

The largest single potential reduction in HAMP costs per residential connection that we have been able to identify is broadening the distribution of HAMP water to the homes and students served by the BIA's Keams Canyon Water System and the two BIE schools. These account for approximately 28% of potential water demand. While there will be some increased capital cost associated with such service, we think there would be no or virtually no increase in fixed operational costs. While it is difficult to estimate the proportion of fixed vs. variable costs in the draft PER and draft Strategic Plan, A reasonable proxy for the variable costs may be the lines for power and chemicals in Table 14.2 of the draft Strategic Plan adjusted upward by 10% for contingencies (\$105,000 for power + \$7,000 for chemicals + \$11,000 for contingencies = \$123,000 per year for variable costs) and then subtract that amount from the estimated \$559,000 annual estimated cost of HAMP water service. This results in a fixed cost of \$436,000 ($\$559,000 - \$123,000 = \$436,000$). If 28% of the fixed cost is attributable to those served by the three BIA/BIE water systems, then that would reduce the share of fixed costs for water delivered to the village water systems by \$122,000 ($\$436,000 \times .28 = \$122,000$), a substantial savings to the villages. Looked at another way, it would reduce the total HAMP fixed and variable cost shared by the villages by \$122,000, resulting in charges totaling \$437,000 per year ($\$559,000 - \$122,000 = \$437,000$), or an overall reduction of 21.8% in estimated annual costs to the villages ($\$122,000 / \$559,000 = .218$). A 21.8% reduction in fixed costs would translate to an estimated monthly HAMP cost per connection of \$38.93 compared to the \$49.78 estimate in Table 8.4, a reduction of approximately \$11 per month per connection.

It is requested that IHS assist the Tribe in identifying means of reducing the average cost of HAMP water as a means to lower the monthly charge to residents. This could be done in a separate memorandum rather than in the PER.

As best as we can tell, the monthly charge does not include the \$7,900 amount per year for the first 10 years that will be required by USDA to build up a loan reserve account.² Also, when operational costs in the PER include sewerage charges, that should always be noted and some attempt made to adjust to reflect just the water charge since other water systems noted in this item are for water service only and the penetration of wastewater collection and treatment systems varies substantially among the Hopi villages. This will help avoid "apples and oranges" comparisons.

5. Conservative Estimate of Future Growth in Water Demand. It should be noted that the annual population growth rate of 1.8% used in the PER appears to be quite

² See 7 C.F.R. 1780.39(e) and USDA Rural Utilities Service Borrower's Guide, pp. 7 and 9 (2011). The advance draft of the Strategic Plan indicates that this amount is 14,000 for the first year, but we calculate \$7,900 (10% per year of the annual loan payment to be set aside in a reserve account for the first 10 years).

conservative and, quite possibly, too conservative. As depicted on Table 3.1, the growth rate for the period from 2000 to 2010 according to the census bureau, which is what the USDA relies on, is reported as 2.33%. That is actually an understatement, because it is not a weighted average and considering that the area with the largest population is First Mesa with a growth rate of 3.30% between 2000-2010. The weighted average population growth including Keams Canyon using the Census data is 2.57% per year between 2000 and 2010 rather than the 2.33% shown. For a PER just covering the First and Second Mesa villages, even that weighted average is an underestimate since it includes Keams Canyon, which had by far the slowest rate of growth between 2000 and 2010 of the villages covered by the tables. Inclusion of the Keams Canyon data are not warranted in these tables for the PER since the PER excludes service to Keams Canyon. Excluding Keams Canyon results in a weighted average population growth for the villages of First and Second Mesa of 2.67% between 2000 and 2010; this number should be used in Tables 3.1 and 3.3.

The inevitable conclusion is that the population growth rate of 1.8% per year is too low. Consistent with this, it is suggested that the probable population growth range reflected in the second full paragraph on page 15 be changed from 1.25 – 2.33% to, perhaps, 1.8 – 2.8%. Averages weighted by population should be used for all of the total population and housing growth rates for Tables 3.1 and 3.2 and the headings should be changed to reflect that. The weighted average growth rate for the number of occupied housing units between 2000 and 2010 was 3.21%, which is somewhat below the reported average of 3.31% due to the inclusion of the high growth rate in Keams Canyon housing, which had a disproportionate effect on increasing the arithmetic average of the growth rates. Also, the heading for Second Mesa in these two tables should be changed to “Sipaulovi-Mishongnovi since Shungopavi is also located on Second Mesa. That was done in Table 5.2.

As noted elsewhere in the PER text, there is a substantial underuse of water by the overall population of the villages because a number of residents have no indoor plumbing and many residents have indoor plumbing for only a portion of the typical American home with at least one kitchen sink, one bathroom sink, one shower or bathtub (or combination) and one toilet; many American homes have more than one of such items. As a result, we suspect that there is a separate growth rate for expansion of water use due to Expansion of demand for water as more and more of the existing homes receive direct water service and expand their use of water to all four in-home facilities should be expected to occur, though that should expand only until a plateau of water service comparable to other American homes is reached.

A second factor likely to drive an increase in the use of water that is not addressed in the report is the replacement of the housing stock of the villages with larger homes being constructed that have more water using features – multiple sinks, at least one shower or bathtub, and at least one toilet. This is likely due to the construction of new homes using HUD-financing as the Hopi population shifts from more traditional housing with multi-generational families to a style more akin to the rest of America with homes more frequently limited to parents and children. Both the expansion of water service within

homes and the expansion in the number of homes argue for a higher rate of expansion in water use.

As a final note under this topic, the number of occupied housing units by village varies widely and wildly between Table 3.1 and Table 5.2 with Table 3.1 reporting substantially fewer homes than Table 5.2 for First Mesa/FMCV and substantially more homes for the Second Mesa villages. These should somehow be reconciled and the difference at least explained.

6. **BIE/BIA Water Service.** On pages 7-8, it should be clearer that the Hopi Tribe and Assistant Secretary – Indian Affairs have done more than simply “initiated discussions” (last ¶ on p. 7). The Assistant Secretary – Indian Affairs has offered to enter into an MOA with the Hopi Tribe and committed to try to shift to HAMP for the supply of water to the BIA & BIE water systems. The MOA is pending approval by the Hopi Tribal Council and IHS. A copy of the proposed MOA should be included in the Appendix – perhaps it could be included with Appendix J. (Note, also, that this is not BIA. It is the Assistant Secretary – Indian Affairs, to which BIA reports). This could be followed by a sentence such as, “The Hopi Tribe has pursued such an arrangement to assure a better supply of high quality water for the residents of Keams Canyon and the students and staff at Hopi Junior-Senior High School and Second Mesa Day School as well as the potential for distributing fixed water supply costs across a broader base of users, thus potentially lowering the cost of water to all users. The BIA/BIE water systems would account for approximately 28% of the water demand from HAMP and would presumably pay their share of fixed water supply costs.”

The sentence on initiating discussions should be deleted. In the first full ¶ on p.8, on line 3 after “three entities,” add “; the Assistant Secretary has set aside its \$150,000 share of the planning work” to be covered in the planning proposal made by IHS in 2013 and submitted the interagency paperwork to transfer the funds to IHS in late February, 2014. The Hopi Tribal Council has a resolution pending that would fund its share of the planning agreement.” In the 3rd ¶, the emphasis should be on the fact that the major reason why water service to the BIA/BIE water systems is not included in the PER is that the planning and engineering work has not been done to evaluate its feasibility, but that it is reasonable to expect that work to be completed within the next 6 to 12 months. It can then be stated that once the work is complete, an assessment will be made of the financial feasibility of extending HAMP to provide water to the three BIA & BIE water systems.

7. **Consistent Step by Step Presentation of Annual and Monthly Water Charge Cost Elements and “Postage Stamp” Rates.** It will be helpful to present the annual and monthly water charge cost elements in a step by step manner that is easy to follow. The Tribal Council will want to understand these elements and their impacts on village residents, and village residents and officials will focus intensively on them. As presented in the advance draft of the PER, Tables 6.19 and 6.20 add to \$480,000 but estimated annual HAMP costs in Table 8.3 total \$559,000 and only one cost element – the annual replacement and rehabilitation cost of \$50,000 – is directly identifiable between the two tables. All of the figures in Table 8.3 should be identifiable in the tables in Section 6 of

the draft PER. It also would be useful in Table 6.19 to have subcategories of fixed and variable costs, which also should be carried over with subtotals for fixed and variable costs to Table 8.3. Section 6 should also include the loan repayment cost and the loan repayment reserve account. If there is specific utility in reporting on “Administrative” costs as shown in Table 8.3, then there should be a line for the same number should show up on Table 6.19.

Also, there is a concern that Table 8.4 inadvertently undermines the idea of having a single fee schedule for all connections so far as the HAMP water service costs are concerned. The monthly HAMP cost per connection should be shown as costing the same amount per village based on a standard service of 6,400 g/month if that is the metric to be used. Alternatively, if what the table is reflecting is that the average usage is different among the three village water systems, then adding additional columns or a separate table to reflect that would be helpful. The appropriate column headings are as follows: Average water use; fixed rate; variable rate; and estimated average cost per connection. It will be helpful for Table 8.4 to show the data with subtotals showing fixed and variable costs.

8. **Comments on Strategic Plan.** There will be a separate set of comments on the Strategic Plan. Some of these comments may result in changes to the Strategic Plan that should also be reflected in the PER. In any case, the data in the Strategic Plan and the PER should be consistent throughout, which is not currently the case.

Additional Comments in Order by Page Number

Page 3, ¶2 – suggest adding at the end of the first sentence “with water on a wholesale basis.” That will make clear right up front that HAMP is proposed as a wholesale water system and will give context to the 5th paragraph.

P. 4, §2.1, suggest expanding this somewhat to explain the extraordinary steps taken to see if water meeting arsenic standards could be found at First and Second Mesas and other conceptual work done to scope out alternative approaches to meeting the needs at First and Second Mesa for water that meets the arsenic standards. It is also suggested that the specific references to IHS and EPA grants and their amounts be deleted in favor of indicating that IHS and EPA have funded exploration of alternatives that could meet the needs of the Hopi villages for a sufficient water supply that meets Safe Drinking Water Act standards. The bullets on page 61 might be brought forward to this page to explain all the work that has gone into fashioning a viable solution to the arsenic problem at First and Second Mesa. See item 2 under Primary Comments for context to reshape this presentation.

¶ 3 – first sentence – suggest breaking into two sentences, adding after #3 “which were completed to assure that there was an adequate supply of water available that would meet Safe Drinking Water Act standards including EPA’s arsenic standards for drinking water. These wells were successful and can serve as the new arsenic” [continue with rest of the sentence on line 2]. The reason for the suggestion is to make clear to reviewers that the wells needed to be drilled to determine if the water quality problems encountered at First and Second

Mesa wells would be repeated further north and whether their productivity would be adequate to meet the water needs of the villages. This general theme should be repeated where the text addresses the drilling of the two wells.

¶4 – the proposed upfront contribution from the Tribe is \$2.2 million rather than \$2.25 million as reflected in several places in the draft PER and Strategic Plan. Throughout the document, this should be identified as a broad-based contribution to HAMP of \$2 million and an initial amount of \$200,000 to set up HPUA, HPUC, and provide a \$21,000 contribution to the IHS Planning Agreement work to do the preliminary engineering and feasibility analysis for the possibility of extending HAMP to also provide wholesale water to BIA's Keams Canyon Water System and the water systems of BIE's Hopi Junior-Senior High School and Second Mesa Day School. The difference of \$50,000 (\$2.2 million vs. \$2.25 million could possibly be identified as \$50,000 to be derived from other sources yet to be determined.

¶5 – next to last line, suggest “is about \$13 more than the rates similar Kykotsmovi and Keams Canyon residents are paying . . .” Also, check to make certain this doesn't include waste water removal service. It would also be appropriate to include the comparable rates for NTUA, Flagstaff, Page, and Winslow, all of which are substantially less.

P. 4 – §2.2, line 5, start the new sentence with “Bulk water would be delivered . . .”

P. 6 – last 2 lines, perhaps a long footnote describing what PMPro requirements are and what the difference is between Phase 1 and Phase 2 would be helpful.

P. 7 – Maintain proper organizational units and titles throughout the PER. §3.1.3 conflates the Assistant Secretary – Indian Affairs and his office as well as the Bureau of Indian Education with BIA. They are separate entities. The Assistant Secretary and his staff are part of the Interior Department's Office of the Secretary, the BIE is a separate bureau like the Bureau of Reclamation or National Park Service, and the BIA is a separate bureau as well. The BIA schools on the Hopi Reservation are BIE schools, not BIA schools. BIE was once a part of BIA, but it has not been so for some time now. Suggest title of “BIA/BIE Water Systems,” on line 2, say “(BIA and Bureau of Indian Education (BIE))” and rewrite the next sentence, delete the “s” from “systems” and distinguish that the Keams Canyon water system is a BIA system and the BIE systems serve the two schools. In the 3rd sentence re Second Mesa, it would be BIE, not BIA. It should be noted that the Office of Facility Management and Construction is a separate office within the Interior Department's Office of the Secretary, but receives at least nominal direction from the Assistant Secretary – Indian Affairs.

P. 8 – 1st ¶, substitute “Assistant Secretary – Indian Affairs (AS-IA)” for “BIA” and in line 2, say “serving the three BIA and BIE water systems”

¶2, line 1, delete “(BIA)” and substitute “Department of the Interior's Office of Facilities Management and Construction (OFMC) on behalf of AS-IA.”

§3.1.4, about 2-3rds the way down the page: add “a replacement well for” before “Turquoise Trail Well #1”

P. 13, title – delete the word “Present.” Also, in the next to last line on the page, add “fish” after “prime farmland.”

P. 15, at the end of the first ¶ addressing Table 3.2, suggest the addition of the following: “It should be noted that there are a number of First and Second Mesa homes with no direct water service connection and many other homes that use piped water for only one or two of the more typical in-home connections for kitchen and bathroom sinks, toilets, bath tubs/showers, or washing machines. The number of homes with direct water service and the number with a more typical number of in-home water uses have been increasing and this trend is expected to continue including through the construction of new, larger homes.”

P. 17, suggest adding at the end of the first ¶, “, but are the result of autonomous villages agreeing to cooperate on their water systems rather than as a result of Tribal policy or planning.” §4.1, it is unclear what a “floating” water storage tank is, but to a layman it sounds like it might move downstream. In the last ¶ of §4.1, the 580 residential service connections needs to be reconciled with the number homes reported in the 2010 Census (see p. 14).

P. 18, the 25 and 100 residential service connections should take into account the discrepancies between Tables 3.1 and 5.2 as discussed above.

P. 25, Table 5.3. Please take into account item 5, Conservative Estimate of Future Growth in Water Demand, under the heading Primary Concerns, above, in deciding whether to use the 1.8% rate, and in taking into account the reconciliation of population and housing data among the tables in §§ 3 & 5 of the PER.

P. 45, §6.3.4.1, what is a Wesley Tool, what would be the cost differential, and what are the features that would cause one to select it? Second line from bottom of page, suggest, “selected” rather than “decided upon.”

P. 52, Suggest adding the following sentence after the last sentence of the partial paragraph at the top of the page: “The environmental effects of HAMP were deemed by the Finding of No significant Impacts to not be significant.” §§6.3.6, 2nd ¶, line 2, suggest “negotiated between Tribal and village representatives and”; in line 3, suggest, “which is a starting point for the negotiations” after “MOA” and deletion of the sentence starting “The Hopi Tribe . . .” The concept behind the draft MOA is that it will be approved by the Hopi Tribal Council as a starting point for the negotiations and is not intended to be an MOA approved by the Council before the negotiations take place. It is assumed that the negotiations will result in changes to the MOA, which will then go to the Tribal Council and village councils or other decision-makers for approval. §6.3.7, last ¶, line 2, suggest changing “tolerated” to “scheduled.”

P. 56, §7.1.1, suggest including the actual rate that was used in the text in line 3 – “the federal discount rate of ___x___.” In the next ¶, 4th bullet, suggest putting in the interest rates from the OMB circular and the interpolated interest rate actually used.

P. 59, §8.2, request that the word “Unfunded” be struck. See the discussion Primary Comments item 1.

P. 60, Table 8.1, Expected Hopi Tribe Cash Contribution row, 2nd column, the \$2,250,000 should be \$2,000,000 or, perhaps \$2,200,000 if you count the HPUA/HPUC start up costs and note that the \$200,000 in the proposed resolution includes \$21,000 for the planning study for the BIA/BIE connections. Also, please change the line “Unspent Grant Funds” to “Available Grant Funds” consistent with the approach recommended in Primary Comments, item 2.

P. 61, §8.5, See item 2, Primary Comments, for context in rewriting this section.

P. 63, for Table 8.4, suggest footnoting the 4th column as “Include wastewater disposal service as applicable” since the comparisons are somewhat apples and oranges. Also, suggest that Table 8.5 be reworked and re-described to also include the comparable rates for NTUA, Flagstaff, Page, and Winslow.

P. 65, for Table 8.8, suggest an additional row be added for the FONSI after the row for the EA. Also suggest adding a line before construction permits for: “Tribal designation of pipeline and other HAMP facility corridors including designating encroachment limitations on them.

Minor Text Items

Page 2, ¶3, line 1, add (DTWSA) as an acronym before “grant;” ¶4, last full line, delete “to”

P. 3, §2.2, line 5, “Route 8029;” §2.3, last line, delete “the.” There are more than 3 mesas on the Hopi Reservation.

P. 16, last line, suggest deleting everything after the final comma.

P. 21, 1st ¶, line 4, suggest changing “in regards to arsenic, and” to “for arsenic and.”

P. 23, §5.3, it should be “villages’” rather than “village’s” since it is plural possessive.

P. 24, “Generational Changes” heading, line two, suggest changing “progressive” to “typical of the U.S. population as a whole.” Not being “progressive” is somewhat pejorative. “Accessibility” heading, line 4, suggest changing “tribal” to “village.” In the next ¶, suggest adding “per capita” after “water consumption.” §5.3.1, 5th bullet, suggest changing “shall be” to “is.”

P. 26, §6.1, ¶1, delete the last comma in the last line; ¶2, line 6, shouldn’t “eastern” be “western?”

P. 27, ¶4, line 2, suggest “seal off” rather than “blind off.”

P. 28, first line, suggest changing “in regards to” to “with” and adding “requirements” after “reporting” in the second line, plus delete the comma after “system” in line 1; 5th bullet, suggest changing “shall be” to “is”; next to last bullet, suggest substituting “to address the possibility of an . . . outage” rather than “in the event of an . . . outage.”

P. 31, first full ¶, line 3, delete “means of:” in second line below table 6.3, suggest using “is” instead of “will be” and adding “analysis” at the end of the sentence.

P. 35, §6.2.6, suggest deleting “do” at the end of line 3 and changing “said” to “the” in line 5.

P. 36, second line from bottom of page, suggest changing “, in all regards.” to “based on all criteria.”

P. 43, first line under §6.3.1, add “s” to “follow.” 5th bullet, suggest “shall be” to “is.” 9th bullet, suggest deleting the comma. 3rd bullet from the bottom of the page, suggest changing “shall be” to “are.” 2nd bullet from the bottom, suggest deleting “to be.”

P. 44, §6.3.3, 1st sentence, suggest deleting “have proved to” and changing “, in terms of” to “for.”

P. 46, 3rd full ¶, suggest breaking the first sentence into two sentences as follows: “When line power is available and the specified control system calls for water production from the well, the 100 hp submersible pump will start pumping water first. The 60 hp ground level submersible pump will start shortly after.” In the last full ¶, line 6, suggest changing “no off-gas” to “not emit.”

P. 48, Table 6.16, under Chloramination, column 3, suggest deleting “against.”

P. 49, §6.3.4.4, line 3, suggest changing “above” to “north of.”

P. 51, §6.3.5, suggest the following changes: line 6, change “impacted” and “impacts” to “affected” and “effects;” 2 lines further down, suggest changing “impacts to” to “effects on;” 1 line further down, suggest “for migratory birds and their nests” after “biologists;” next line, suggest deleting “tribally sensitive” since there is no evidence that the eagles are sensitive to the Tribe, and at the end of the line after “nests,” add, “, a special concern of the Hopi.” In the next ¶, suggest “the location for” after the first “and” and changing “impacts” to “effects,” in line 6, suggest changing “impacts” to “adverse effects” re heavy equipment, in lines 8, 10, and 11, respectively, suggest changing impact(s) to “effects,” “effects” and “affect” respectively and adding “and have identified areas to avoid” after “development” in the 11th line. In the last ¶, suggest changing “impacts” to “effects” in line 1 and “proposed to be” before mitigated” in the same line; next to last line, suggest “the HAMP” instead of “this” and “adversely affect” rather than “impact.”

P. 56, 5th bullet, suggest deleting all commas. §7.1.2, line 2, suggest changing “split into” to “evaluated as”

P. 57, §7.1.3, 4th bullet, suggest adding at the end: “due to the high consumption of diesel fuel.” In the 1st line of the full ¶ below, suggest using “favored” instead of “prevailing.”

P. 59, §8.3, 1st ¶, second sentence, suggest “criteria for” rather than “in regards to.” In the 2nd bullet of the 1st set of bullets, suggest “in violation of regulatory requirements.” In the 2nd set of bullets, suggest in bullet 1, “systems” since it is plural possessive; 4th bullet, suggest it start with “Information on other . . .”; 6th bullet, suggest it start with “Submission of an . . .Environmental . . .” and end with “statement” after “exclusion.” At the top of page 60, 3rd bullet, suggest “A posted public notice” rather than “Post.”

P. 61, §8.6, 2nd ¶, suggest changing “who” in the 1st line to “which.”

P. 64, 2nd line, suggest changing “approximated” to “estimated.” §8.9, first sentence, suggest changing “with” to “for which” and “acting as trustee to” “acts as trustee for the United States. 2nd sentence, suggest deleting the semicolon, after “ROW”, suggest inserting “for third party projects such as state highway and APS utility lines;” at the end of the third sentence, before “etc.” suggest adding “designating and protecting Tribal utility corridors,”

P. 65, 1st partial ¶. Suggest “a” before “technical resource,” and “such as APS or ADOT” after “entity.” Also suggest deleting the comma in the sentence before the table.

P. 66, suggest ending the first sentence after “analyzed.” 2nd ¶, instead of “comparable to” in the 1st sentence, suggest “about x % greater than” and insert whatever the percentage is; last sentence of the ¶, suggest “repair, replacements, and debt servicing.